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March / 6, 2005

Applicants:

Ho-Shang Lee and Alexander Birman

Title:

Light Emitting System With High Extraction Efficiency

Application No.:

10/773,943

Filing Date:

February 6, 2004

Examiner:

Not yet assigned

Group Art Unit:

2826

Docket No.:

DICO.049US0

Conf. No.:

7975

Mail Stop Amendment Commissioner For Patents P.O. Box 1450 Alexandria, VA 22313-1450

Dear Sir:

Transmitted herewith are the following documents in the above-identified application:

- (1) Return Receipt Postcard;
- (2) This Transmittal Letter (1 page in duplicate);
- (3) Information Disclosure Statement (2 pages);
- (4) PTO Form 1449 (2 sheets); and
- (5) 7 Cited References.

## No additional fee is required.

Please charge any additional fees required and credit any overpayment to our Deposit Account No. 502664.

Certificate of Mailing Under 37 CFR 1.8

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Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on March 2005

22313-1430, Oil Malcii <u>752</u>, 2

Ann-Ellice Parker

Respectfully submitted,

James S. Hsue

VReg. No. 29,545

Date



### IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Ho-Shang Lee et al.

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### INFORMATION DISCLOSURE STATEMENT

Dear Sir:

Pursuant to 37 C.F.R. §§ 1.56, 1.97 and 1.98, Applicant(s) call(s) the documents listed on the enclosed Form PTO-1449 to the Examiner's attention in this patent application.

This application has a filing date after June 30, 2003. Copies of the U.S. Patent(s) and U.S. Published Patent Application(s) documents listed on the accompanying Form PTO-1449 are not enclosed.

Citation of these documents shall not be construed as (1) an admission that the documents are prior art with respect to the invention or inventions claimed in this application, (2) a representation that a search has been made (other than as indicated by any cited document), or (3) an admission that the cited information is, or is considered to be, material to patentability as defined in § 1.56(b).

This information disclosure statement is submitted under 37 C.F.R. § 1.97(b) and consequently no fee should be required. The Commissioner is authorized, however, to charge

Attorney Docket No.: DICO.049US0

Application No.: 10/773,943

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any fee that may be required, or to credit any overpayment, against Deposit Account No. 502664.

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Ann-Ellice Parker

Respectfully submitted,

ames S. Hsue

Reg. No. 29,545

Sheet 1 of 2

| U.S. Depar                          | rtment of | Commerce, Patent a  | nd Trademark    | Atty. Docket No.  |                     |          | Application No.            |         |  |  |
|-------------------------------------|-----------|---|-----------------|---|---------------------|----------|----------------------------|---------|--|--|
| INFORMATION DISCLOSURE STATEMENT BY |           |   |                 | DICO.049US0   |                     |          | 10/773,943                 |         |  |  |
| OIPA                                |           | APPLICANT   |                 | Applicant(s)  |                     |          | Conf. No.                  |         |  |  |
|                                     | se sev    | eral sheets if necessa  | ry)             | Ho-Shang Lee et al.                                     | Ho-Shang Lee et al. |          |                            | 7975    |  |  |
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| RADEMARK PA                         | /         |   | U.S. P          | atent Documents   |                     |          |                            |         |  |  |
| *Examiner<br>Initial                |           | Document<br>Number  | Date            | Name  | Class               | Subclass | Filing I                   |         |  |  |
| ····-                               | 1         | 5,008,718   | 4/16/1991       | Fletcher et al.   |                     |          | 4                          |         |  |  |
|                                     | 2         | 5,779,924   | 7/14/1998       | Krames et al.   |                     |          |                            |         |  |  |
|                                     | 3         | 5,955,749   | 9/21/1999       | Joannopoulos et al.                                     |                     |          |                            |         |  |  |
|                                     | 4         | 6,323,063   | 11/27/2001      | Krames et al.   |                     |          |                            |         |  |  |
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|                                     |           |   |                 |   |                     |          |                            |         |  |  |
|                                     |           | . U.  | S. Published Pa | tent Application Docur                                  | ments               |          |                            | ,       |  |  |
| *Examiner<br>Initial                |           | Document<br>Number  | Date            | Name  | Class               | Subclass | Filing Date If Appropriate |         |  |  |
|                                     | 6         | US2003/0141507  | 7/31/2003       | Krames et al.   |                     |          |                            |         |  |  |
|                                     |           |   | Foreign         | Patent Documents  |                     |          |                            |         |  |  |
|                                     |           |   |                 | -   |                     |          | Tran                       | slation |  |  |
|                                     |           | Document  | Date            | Country   | Class               | Subclass | Yes                        | No      |  |  |
| <u> </u>                            |           |   |                 |   |                     |          |                            |         |  |  |
|                                     |           | OTHER AR  | f (Including Au | thor, Title, Date, Perti                                | nent Pages, F       | Etc.)    |                            |         |  |  |
|                                     | 7         | C. Rooman et al. "High-efficiency 650 nm thin-film light-emitting diodes," Proceedings of SPIE (2001), vol. 4278, pp. 36-40.                      |                 |   |                     |          |                            |         |  |  |
|                                     | 8         | J.R. Wendt et al., "Nanofabrication of photonic lattice structures in GaAs/AlGaAs," J. Vac. Sci. Technol. B 11(6), (Nov/Dec 1993), pp. 2637-2640. |                 |   |                     |          |                            |         |  |  |
|                                     | 9         |   |                 | from optically pumped lightitute of Physics (1999), vo  |                     |          | hotonic crysta             | ls,"    |  |  |
| Examiner                            |           |   | Date Considere  | ed .  | ····                |          |                            |         |  |  |
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| INFORMA   |          | ISCLOSURE STAT  | TEMENT BY        | DICO.049US0                                       |              |          | 10/773,943                 |         |  |  |  |
|   |          | APPLICANT   |                  | Applicant(s)                                      |              |          | Conf. No.                  |         |  |  |  |
| (   | Use seve | ral sheets if necessa   | ry)              | Ho-Shang Lee et al.                               |              |          | 7975                       |         |  |  |  |
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|   |          |   | U.S. Pa          | tent Documents                                    |              |          |                            |         |  |  |  |
| *Examiner<br>Initial  |          | Document<br>Number  | Date             | Name  | Class        | Subclass | Filing Date If Appropriate |         |  |  |  |
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| *Examiner Document Filing Date  |          |   |                  |   |              |          |                            |         |  |  |  |
| Initial   |          | Document<br>Number  | Date             | Name  | Class        | Subclass | Filing Date If Appropriate |         |  |  |  |
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|   | •        |   | Foreign F        | Patent Documents                                  |              |          |                            |         |  |  |  |
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|   | ·        | Document  | Date _           | Country   | Class        | Subclass | Yes                        | No      |  |  |  |
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|   | J        | OTHER AR'   | T (Including Aut | hor, Title, Date, Pertin                          | ent Pages, F | Ctc.)    |                            | L       |  |  |  |
| OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)  10 T.N. Oder et al., "III-nitride blue and ultraviolet photonic crystal light emitting diodes," Applied Physics Letters, American Institute of Physics (2004), vol. 84, no. 4, pp. 466-468. |          |   |                  |   |              |          |                            |         |  |  |  |
| ,   | 11       | H. Ichikawa et al., "Efficiency enhancement in a light-emitting diode with a two-dimensional surface grating photonic crystal," Applied Physics Letters, American Institute of Physics (2004), vol. 84, no. 4, pp. 457-459. |                  |   |              |          |                            |         |  |  |  |
|   | 12       | Han-Youl Ryu et al., "Enhancement of Light Extraction From Two-Dimensional Photonic Crystal Slab Structures," IEEE Journal On Selected Topics In Quantum Electronics, vol. 8, no. 2, (March/April 2002), pp. 231-237.       |                  |   |              |          |                            |         |  |  |  |
|   | 13       | Alexei A. Erchak et al., "Enhanced Extraction from a Light-Emitting Diode Modified by a Photonic Crystal and Lasing Action," National Science Foundation - #DMR-9808941, (February 2003) pp. 43-45.                         |                  |   |              |          |                            |         |  |  |  |
| Examiner D  |          |   | Date Considered  | e Considered                                      |              |          |                            |         |  |  |  |
|   |          |   |                  | citation is in conformation of this form with you |              |          |                            |         |  |  |  |